



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/021,751	12/11/2001	Matthew L. Babicki	6454-61583	6240

24197 7590 02/20/2003

KLARQUIST SPARKMAN, LLP  
121 SW SALMON STREET  
SUITE 1600  
PORTLAND, OR 97204

EXAMINER

LAWRENCE JR, FRANK M

ART UNIT PAPER NUMBER

1724

DATE MAILED: 02/20/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/021,751	BABICKI ET AL.	
	Examiner	Art Unit	
	Frank M. Lawrence	1724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 January 2002.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-158 is/are pending in the application.
- 4a) Of the above claim(s) 1-72, 111-121 and 128-149 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 82-89, 91 and 110 is/are allowed.
- 6) ☒ Claim(s) 73-77, 79-81, 90, 92-98, 122-127 and 150-158 is/are rejected.
- 7) ☒ Claim(s) 78 and 99-109 is/are objected to.
- 8) ☒ Claim(s) 1-158 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☐ All b) ☐ Some \* c) ☒ None of:  
 1. ☒ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
 \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>6</u> . | 6) <input type="checkbox"/> Other:  |

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election with traverse of the restriction requirement in Paper No. 5 is acknowledged. The traversal is on the ground(s) that applicants disagree with the requirement (no reason given) and that examining all of the claims together would not present an undue burden for the examiner. This is not found persuasive because the search and examination would be considerably longer and require searching in other technologies.

The requirement is still deemed proper and is therefore made FINAL.

### *Priority*

2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Canada on December 11, 2000. It is noted, however, that applicant has not filed a certified copy of the Canadian application as required by 35 U.S.C. 119(b).

### *Claim Objections*

3. Claims 73, 108 and 154 are objected to because of the following informalities: The last step of claim 73 recites, "using the PSA apparatus to product gas". It appears that "product" is a typographical error. Claim 108 depends from claim 96, which may be an error because the remainder of the claims are grouped to depend from the previous independent claim (98 in this instance). Claim 154 recites "to product a product fluid" which appears to be an error.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 90, 92-97, 101, 125 and 127 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 90 and 92 contain the recitation "delta X" which is not defined. Claim 125 contains the term "SEAL FRICTION" which appears to be a trademark or tradename, and should be replaced with the generic terminology. Also, the Markush groups in claims 125 and 127 are indefinite because it is unclear one of the items are claimed as being selected, or all of the items are claimed as being used together. Claims 93-97 are rejected for being dependent from rejected claim 92.

6. Regarding claim 101, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 73, 74, 77, 79, 122-127, 150, 151 and 154 are rejected under 35 U.S.C. 102(b) as being anticipated by McKey et al. (4,127,395; figure 3; col. 1, line 65 to col. 2, line 22; col. 4, lines 48-66; col. 5, lines 39-60; col. 11, line 44 to col. 12, line 10; claims 5, 6).

9. McKey et al. (395) teach a PSA system for removing moisture from an air stream, comprising providing a PSA apparatus comprising adsorbers containing a moisture-sensitive adsorbent silica bed (69) and an upstream buffer desiccant bed (68) of activated for protecting

the adsorbent bed from free water. The inlet ends of the beds are fluidly coupled to a purge exhaust (breather) through an isolation valve (97). Adsorbent degradation is reduced by providing heating elements near the feed end for regeneration of the most saturated parts of the adsorbent beds. The heating elements use resistance heating as well as heating with a heated fluid that is inherently produced when purge gas passes the heating elements upstream of the feed end extremity. The space in the product delivery end created by screens (66) meets the limitation of a product delivery compartment that receives a buffer (purge) gas, which has the same water vapor content as the product gas of the PSA system because it comes from the outlet of the on-line adsorber. During the purging of an adsorber, it is shut down with respect to producing product gas by stopping the delivery of product gas, purging with product flow from the on-line adsorber, and heating the buffer layer, which is subsequently cooled when the heating is discontinued.

*Claim Rejections - 35 USC § 103*

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 155-158 are rejected under 35 U.S.C. 103(a) as being unpatentable over McKey et al. ('395).

12. McKey et al. ('395) disclose all of the limitations of the claims except that the allowed deactivation of the production layer is 5% or less. It is submitted that one having ordinary skill in the art at the time of the invention would have arrived at a level of deactivation appropriate for

a desired application using routine experimentation. Also, the deactivation will depend on the contaminant concentration of the feed stream, which may be low enough not to cause any deactivation of the production layer.

13. Claims 75, 80, 81 and 152 are rejected under 35 U.S.C. 103(a) as being unpatentable over McKey et al. ('395) in view of Dangieri et al. (4,406,675; col. 1, lines 11-22; claim 23).

14. McKey et al. ('395) disclose all of the limitations of the claims except that the PSA apparatus is a fast cycle PSA apparatus. Dangieri et al. ('675) disclose a fast cycle PSA system having a total operating time for each cycle of 2-10 seconds. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the PSA system of McKey et al. ('395) by incorporating a fast cycle system in order to achieve a higher adsorbent productivity.

15. Claims 76 and 153 are rejected under 35 U.S.C. 103(a) as being unpatentable over McKey et al. in view of Dangieri et al. as applied to claims 75 and 152 above, and further in view of Mattia (4,452,612; col. 2, lines 22-40 and 57-59).

16. McKey et al. in view of Dangieri et al. disclose all of the limitations of the claims except that the PSA apparatus is a rotary apparatus. Mattia ('612) discloses a rotary PSA apparatus for the separation and purification of gases and vapors continuously. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the PSA system of the prior art by using a rotary system in order to provide a continuous system using multiple beds that avoid the gas loss from the pressure release during desorption and have a high efficiency and flexibility at minimal costs.

17. Claim 98 is rejected under 35 U.S.C. 103(a) as being unpatentable over Garrett et al. (5,507,957; figure; col. 2, lines 12-14; col. 2, lines 51-58; col. 3, lines 6-7) in view of Dangieri et al. ('675).

18. Garrett et al. ('957) disclose a PSA system for producing oxygen from an air stream, comprising providing a PSA unit having a feed air dryer (16) upstream of a feed end of the PSA unit, and adsorbers having a desiccant layer (10) at the feed end. The use of the dryer and desiccant layer will inherently increase operation time before shutdown is required for adsorber replacement by protecting the adsorber from moisture contamination.

19. The instant claim differs from the disclosure of Garrett et al. in that the PSA apparatus is a fast cycle unit. Dangieri et al. disclose a fast cycle PSA system as discussed in paragraph 14 above. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the system of Garrett et al. by incorporating a fast cycle system for reasons discussed in paragraph 14.

*Allowable Subject Matter*

20. Claims 82-89, 91 and 110 are allowed.

21. Claim 92 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

22. Claims 90 and 93-97 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Art Unit: 1724

23. Claims 78 and 99-109 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

*Conclusion*

24. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank M. Lawrence whose telephone number is 703-305-0585. The examiner can normally be reached on Mon-Thurs 7:30-5:00; alternate Fridays 7:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A. Simmons can be reached on 703-308-1972. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.

Frank Lawrence

*Frank Lawrence* 2-6-03

Patent Examiner

fl

February 6, 2003